VHA Performance Measurement In Cardiac Care

A Map for VHA Cardiac Performance Measurement in FY 2005 and beyond...

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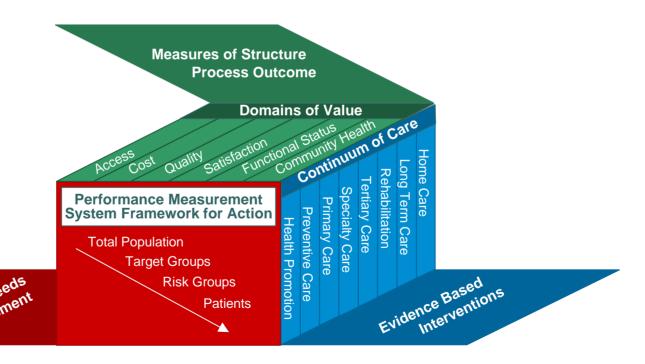
Needs Assessment Prioritization Phase



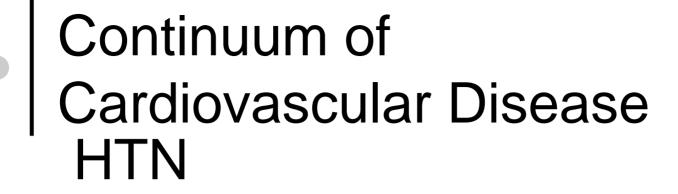
- Inventory the health of and risk inherent in the population served
- Gain insight into disease and trajectory of illness for critical populations
- Estimate the burden of illness (patient and health care system)
- Gap Analysis of requirements
 - New or improved service is needed
 - Outcomes less than optimal
 - Update to existing practice, process or service
 - New skills, capacity, capabilities or infrastructure
- Target an 'at-risk population'



Performance Measurement System Framework for Action







Days

7 30 60 360

Clinical Strategy	Primary Prevention	Secondary Prevention	Initial Presentation	Discharge	Follow-up
Assessment Risk					
Evaluation Testing					
Therapy					
Education Counseling					
Clinical Events					QP.



Recommendations to Improve BP Control and Management Systems

Providers

- Greater use of thiazide-type diuretics
- Greater use of fixed-dose combinations
- Need for at least2-3 AHT drugs in majority of HT patients
- oRational combining of AHT medications, as per various quidelines

- Proper BPMeasurement
- Recording of BP in CPRS VS package
- OUse of hypertension clinical reminders
- oFeedback to providers, VAMCs, and VISNs on BP control and AHT medication usage
- oUse of home BP manometers to improve adherence

- To know their BP numbers
- oTo know their BP goals
- oln lifestyle recommendations to prevent or treat hypertension
- That most patients need at least 2-3 drugs to control BP
- On proper BP measurement

BP Control and Management in VHA

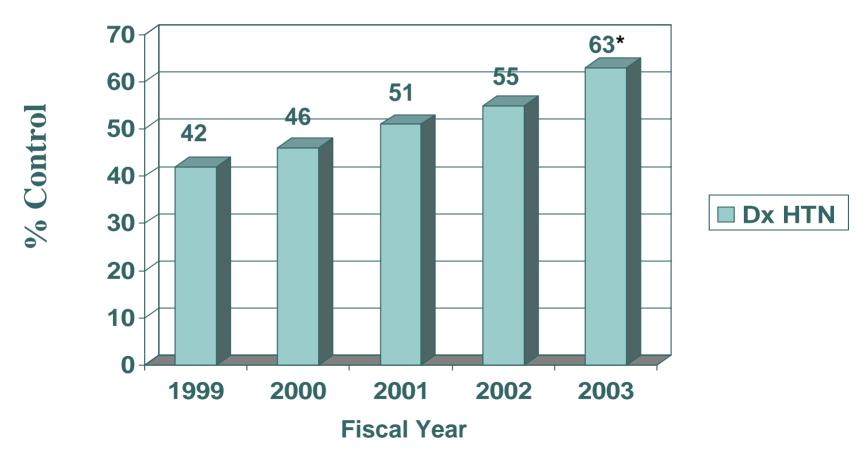
- Optimize secondary prevention strategies in the management of HTN
- Series by Name –

For patients with an active diagnosis of HTN:

- Percent of patients with BP < or = 140/90 (PM)
- Percent of patients with BP > or = 160/100 or not recorded (PM)



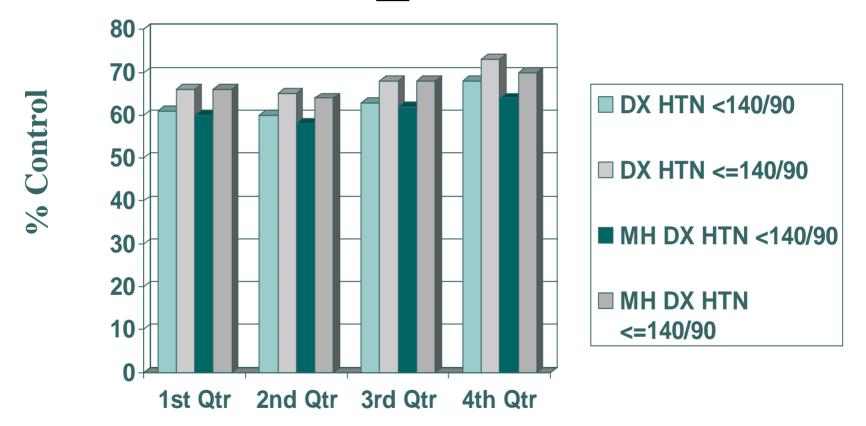
Patients with Diagnosis of HTN BP Control rates < 140/90



•Note*5% higher in 2003 when ≤ 140/90 mm Hg used as criterion (to be comparable to HEDIS)

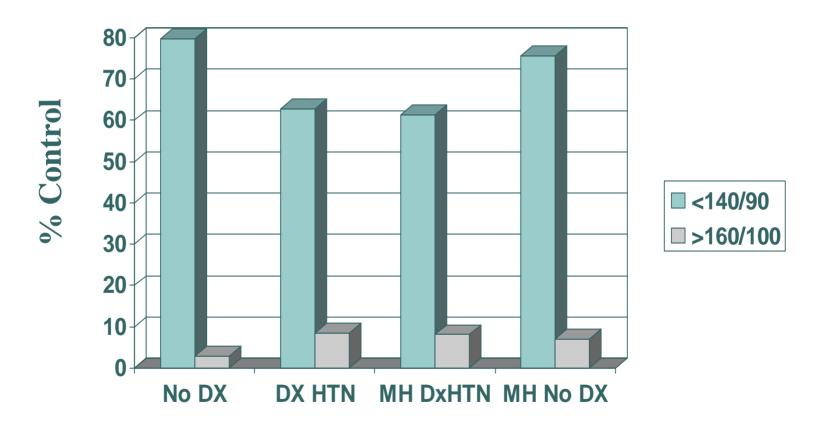


FY 2003 All Cases Sampled Percent BP < 140/90 VS Percent BP <140/90



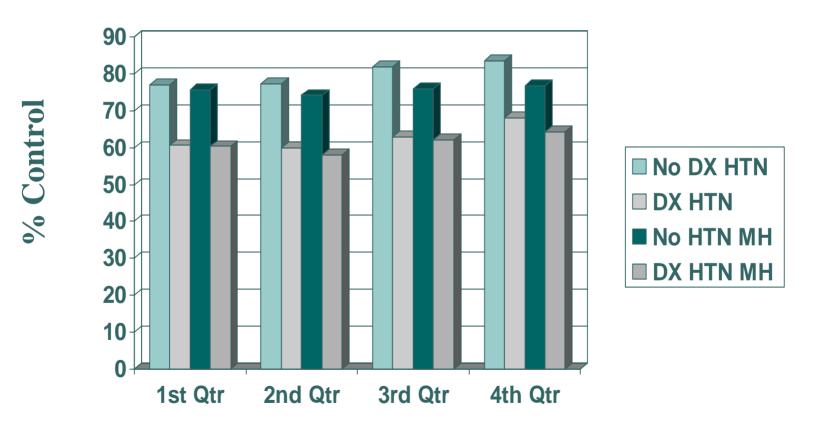


All Cases Sampled in 2003 Blood Pressure Control in Four Cohorts





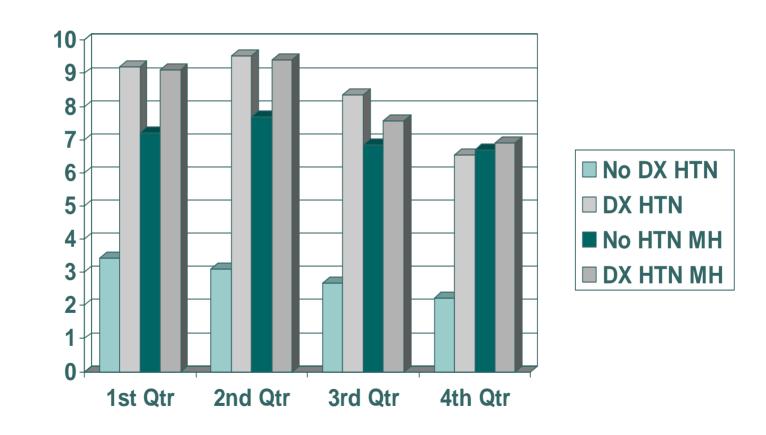
FY 2003 All Cases Sampled by Quarter Percent BP < 140/90





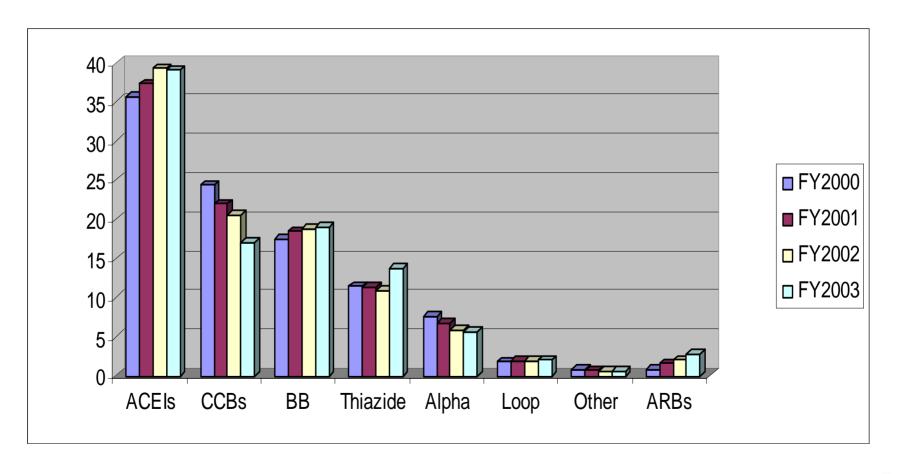
FY 2003 All Cases Sampled Percent BP > 160/100







Antihypertensive Medications Patients on Monotherapy





Continuum of Cardiovascular Disease - HF

7 30 60 360

	Primary Prevention	Secondary Prevention	Initial Presentation	Discharge	Follow-up
Assessment Risk					
Evaluation Testing					
Therapy					
Education Counseling					
Clinical Events					QP.

Secondary Prevention in Heart Failure – Antecedent Care

- Optimize the Outpatient Management of Heart Failure in an effort to prevent HF admissions
- Series by Name –

For Hospitalized HF patients:

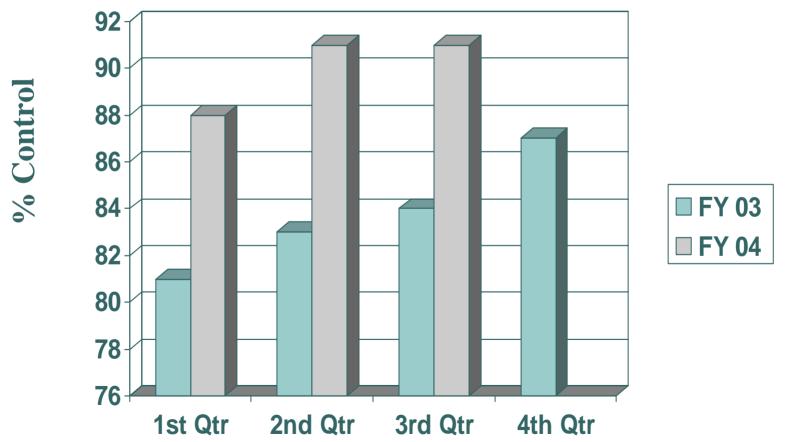
- Percent of HF Inpatients with EF<40 on ACEI prior to admission (PM)
- Percent of HF Inpatients with weight instruction prior to admission (PM)
- Percent of HF Inpatients with discharge instructions in weight, diet, and medications (PM)

Indicator Highlights – Secondary Prevention

- Why
 - HF as an ambulatory care sensitive condition
 - 80/20 rule HF in top 5 VHA diagnosis with high readmission rates
 - Low likelihood of treatment by multiple providers
 - Preventive strategies often under-prescribed
 - Patient education key in managing this chronic condition

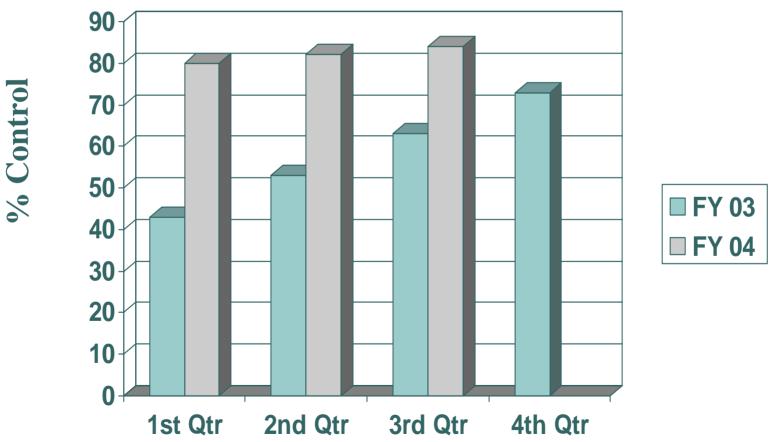


Antecedent Care – HF Inpatients with EF<40 on ACEI Prior to Admission



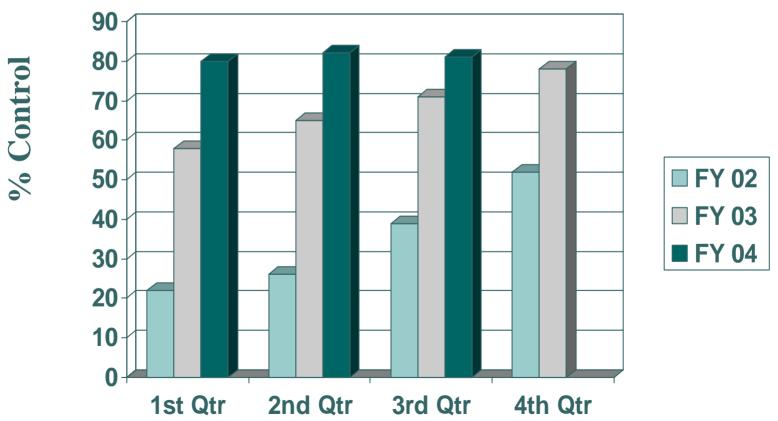


Antecedent Care – HF Inpatients with Weight Instruction Prior to Admission





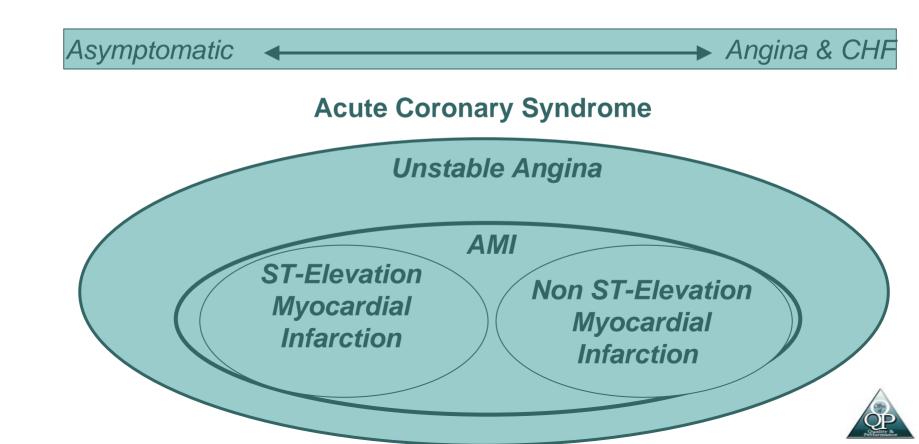
HF Inpatients with Diet, Weight, and Medication Instruction Prior to Discharge





Acute Coronary Syndrome

Manifestations Continuum of ACS



Coronary Artery Disease

- 5-7 million seen annually with ACI
 - 50% false positive rate among ACI admissions
 - 5% ACI and 3% AMI false negative rate
 - STEMI 30%, NSTEMI 25%, UA 38%, 7%
 Misc.
- o In VHA
 - STEMI 24%, NSTEMI 38%, UA 33%, 4%
 Misc.
 - Over 25,000 admission to VHA facilities



Challenges Time to Treat

- AMI, UA, from noncardiac causes
- Survival and degree of damage depends on rapid diagnosis and appropriate treatment
- Interrupt cascade (plaque, thrombus, flow, ischemia, necrosis)

- Given the relationship between treatment delay and death,
- a determination of the likelihood of acute ischemia caused by coronary artery disease should be made in all patients with chest pain

• • Acute Coronary Syndrome in VHA

First facility	Tertiary	Non- tertiary	Non-VA Hospital	Total
STEMI seen in <12	151 (52%)	80 (28%)	56 (20%)	287 (11%)
STEMI seen in >12	132 (56%)	68 (29%)	34 (14%)	234 (9%)
NSTEMI	425 (54%)	207 (27%)	147 (19%)	779 (31%)
UA	401 (60%)	215 (32%)	47 (7%)	663 (26%)
Unable to stratify risk	277 (48%)	188 (32%)	115 (20%)	580 (23)%
Total	1386 (54%)	758 (30%)	399 (16%)	2543 (100

Comparing Codes to Classification

ICD9 Code	410	411	Total
STE MI	86%	14%	24%
NSTE MI	80%	20%	38%
Unstable Angina	6%	94%	33%
Missing	9%	91%	4%
Total	1365	1178	2543
	54%	46%	100%

Continuum of Cardiovascular Disease Acute Coronary Syndromeaus

7 30 60 360

	Primary Prevention	Secondary Prevention	Initial Presentation	Discharge	Follow-up
Assessment Risk					
Evaluation Testing					
Therapy					
Education Counseling					
Clinical Events					CP.

Early Continual Risk Stratification

	Initial Presentat	Cardiac Care / fion 1st 24 Hours	Hospital Phase	Pre- Discharge	Follow-up
GOAL	Identify each invasive medical candidate	v.s. effective- ness of acute	Segregate complicated from uncomp-	Assess stabilized patient risk and identify	Execute plan for further testing, rehabilita-
Physical Exam		intervention and need for rescue	licated infarction and UA	candidate for cath	tion, and risk factor
History				and plan for further	modifica- > tion
ECG				testing	
Biochemical Markers					
Invasive Procedures					
Noninvas Testing and I					

Assessment and Risk Stratification at Initial Presentation

- Optimize the Diagnosis and Management of ACS through stratification into appropriate treatment groups
- Series by Name –

For Hospitalized ACS patients:

- Initial Risk Stratification variable collection
- Timely (10 Minutes) In-hospital EKG (PM)
- Timely (60 Minutes) initial result of serial troponin measurement (PM)
- High risk and moderate-high risk Cardiology involvement within 24 hours (PM)



Indicator Highlights – Risk

- Why
 - Highest risk benefit most from aggressive interventions
 - Low risk care can be more selective and resource efficient
- Targeted evidence based intervention, risk reduction, and enhanced survival
- Early and continual quantification of shortterm and long term risk
- Discriminatory capability of models balance between simplicity and complexity
- Drive recording of and collection of these variables



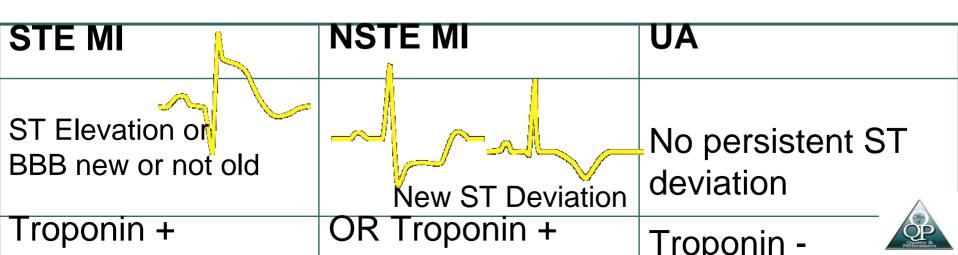
Risk Stratification

- Tools: TIMI-STEMI, GUSTO STEMI, TIMI-NSTEMI, PURSUIT-NSTEMI, PREDICT, CCP (Crusade)
- Demographics
 - Age, female, ethnicity
- Physical examination and hemodynamics
 - BP, Pulse, CHF, Shock, pulmonary edema
- Medical history and risk factors
 - DM, HTN, angina, prior MI, coronary stenosis, or stroke, preadmission medications, anginal history
- ECG
 - Infarction location, ST , number of leads
- Biochemical markers
 - Elevated troponin, CK-MB



Indicator Highlights – ECG

- Accurate identification of ischemic ST-segment
- Critical prognostic information (i.e number leads)
- Complementary to troponin in categorizing ACS
- Time is of the essence (Pre-hospital ideal)
- Accurate interpretation key (while symptomatic)
- Applicable to patients with symptoms
- Acute arrival time is used



Indicator Highlights - Troponin

Troponin

- Replaced CK-MB as GOLD standard;
- TnT or I accepted
- Serial v.s. Isolated and Point-of Care testing
- Peak levels after 6 hours
- False positives (most accurate in 1st time AMI)
- Significant level (2 SD) Intermediate Coronary Syndrome
- Time of chest pain/symptom onset critical
- Terminal marker of necrosis
- IMA evolving as negative predictor



Indicator Highlights – Cardiology Involvement in 24 hours

- Cardiologist in initial 24 hours
 - May delay treatment or prompt less than optimal level of care if systematic approach not addressed
 - Local unavailability can be addressed through telemedicine, documented phone consultation
 - Cardiologist, Fellow, Resident with appropriate supervision
 - Catheterization assumes involvement





Days

7 30 60 360

	Primary Prevention	Secondary Prevention	Initial Presentation	Discharge	Follow-up
Assessment Risk					
Evaluation Testing					
Therapy					
Education Counseling					
Clinical Events					QP Poternia a

Use and Timing of Early Invasive Treatment at Initial Presentation

- Optimize the timely use of early invasive strategies for high risk candidates
- Series by Name –

For Hospitalized ACS patients:

- Appropriate receipt of reperfusion subcategorized by thrombolysis and PCI (PM)
- Timely administration of thrombolytic therapy (PM)
- Timely receipt of primary PCI (PM)
- Mean (Median) time to thrombolytic therapy (SI)
- Mean (A Median) time to PCI (SI)



Indicator Highlights-Revascularization

- High risk candidates
 - *STEMI/BBB, troponin positive, <12 hours from onset
 - NSTEMI, troponin positive
- Routine invasive v.s. selective invasive NSTEMI controversy
 - GP IIb/IIIa Receptor Blocker
 - Platelet Aggregation Inhibitors
 - LMWH
- Agents reteplase, tenetepalse, alteplase, streptokinase
- Insufficient evidence favoring stenting over PTCA
- Effect depends on timing (within 6 hours outside 12 hours)
- *30 minutes door-to-needle thrombolytic (30 minutes-NHAAP)
- *120 minutes door-to-treatment PCI



NSTEMI Early Invasive Strategy

- Recurrent Angina, in spite of medical treatment
- Elevated troponin
- New ST depression
- CHF
 - S3 gallop
 - Worsening rales
 - Chest xray evidence of pulmonary edema
 - New /worsening mitral insufficiency

- High risk fining on noninvasive stress testing
- EF<40% on noninvasive study
- Hemodynamic instability
- Sustained V tach
- Prior CABG
- PCI within previous six months





Days

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Evaluation Testing					
Therapy					
Education Counseling					
Clinical Events					

Continual Assessment and Risk Stratification

- Optimize the diagnosis and management of ACS through stratification into appropriate treatment groups prior to and after discharge
- For ACS patients:
 - High and moderate-high risk Diagnostic Catheterization prior to discharge (PM)
 - High and moderate-high risk Seen by Cardiology in 60 days (PM)
 - Moderate-low risk Plan for further work-up to include stress testing and possible catheterization prior to discharge (PM)



Indicator Highlights

- o Who /When
 - High and moderate high risk patients must have cardiac catheterization prior to discharge
 - Moderate-low must have a plan at discharge including stress testing and angiography
 - Will accept higher level of care
- Efficient use of resources indicates visit with Cardiology in 60 days for High and Moderatehigh risk
- Bottom line: did the risk match treatment regardless of who supplied care





Days

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Clinical Events					CP

Risk Factor Modification and Secondary Prevention

- Stabilize vulnerable plaques through statin- and other agent mediated lowering of lipids
- Series by Name –

For Post hospitalized ACS patients:

- ACS post hospitalization (greater than 8 weeks) with lipids <100 (PM)
- ACS post hospitalization (greater than 8 weeks) with lipids >120 (PM)



• • Indicator Highlights

- The Lipid Panel
 - Measured within 24 hours of admission v.s. predischarge v.s post discharge (within 12 weeks)
 - Statins and other agents without LDL-c measurement and adjust at first visit v.s. not dependent on LDL
 - When to start i.e. CCU
 - Controversy over correct LDL goal
 - Threshold effect
 - Absolute gain not linear (higher LDL/ higher gain)
- Agent Statins majority of trials
- Applies to CAD equivalent patients (Diabetes and noncardiac vascular disease)



• • Other Considerations

- ACC/AHA Guidelines revision
 - Medication use glycoprotein IIb/IIIa Inhibitors, LMWH, antiplatlet therapy
- Structure issues
 - Telemedicine Hub Spoke
 - Facility Characteristics
 - Cardiologist/ catheterization availability
 - Urban, rural, tertiary
 - ER Resources and skills
 - Transfers
 - High volume locations simply perform better
- Significant Endpoints
 - Mortality at 30, 90, 180, 365
 - Non fatal MI
 - Worsening Heart Failure, Cardiac arrest, Recurrent severe ischemia, Stroke



• • Important Notes ...

- 411 added to 410 population to inpatient sample
- Expand sampling to follow this group into their outpatient continuum of care
- JCAHO Measure related to ASA, Beta Blocker, ACEI and LVEF assessment continue



Pathophysiology Plaque Vulnerability **Inflammation** Plaque Disruption **Platelet Activation Clotting** Intracoronary Thrombus **Coronary Flow** Reduced Blood Flow **Ischemia** Myocardial Ischemia **Necrosis Scar** Myocardial Necrosis

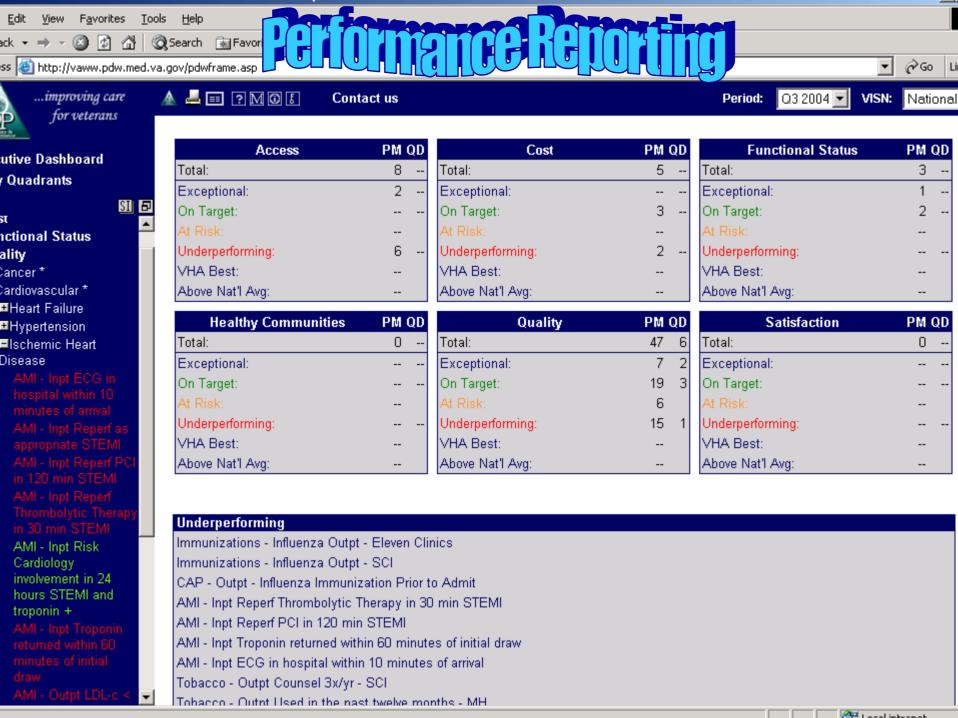
Performance Measures

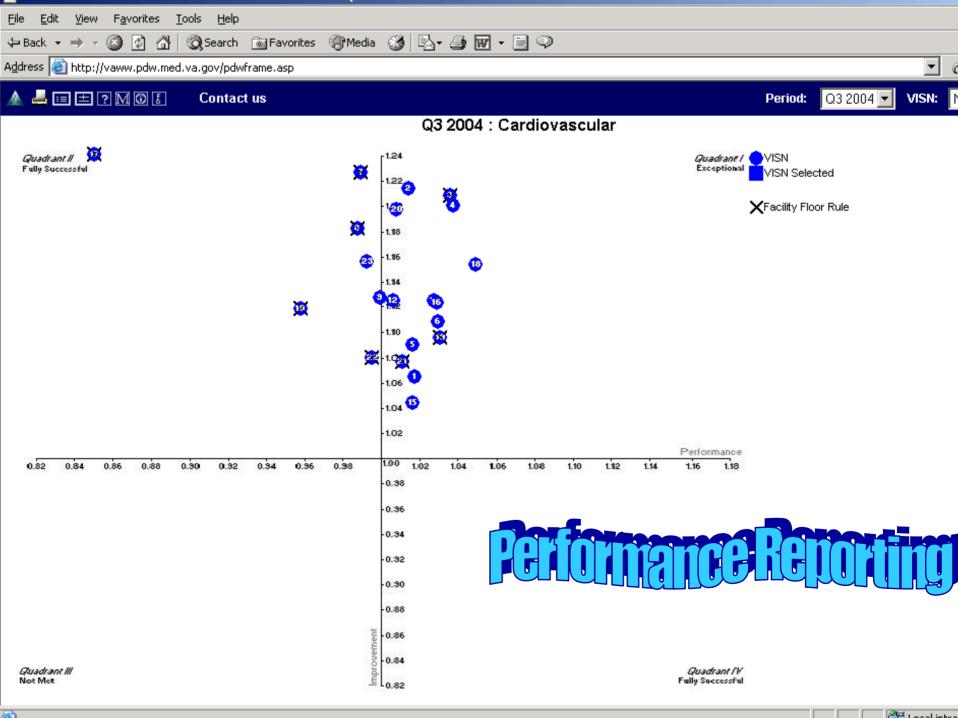
Screening Hyperlipidemia/ Tobacco
Tobacco counseling
High risk 60 Day FU with Cardiology
Lipid Measurement
Anti-platelet Therapy

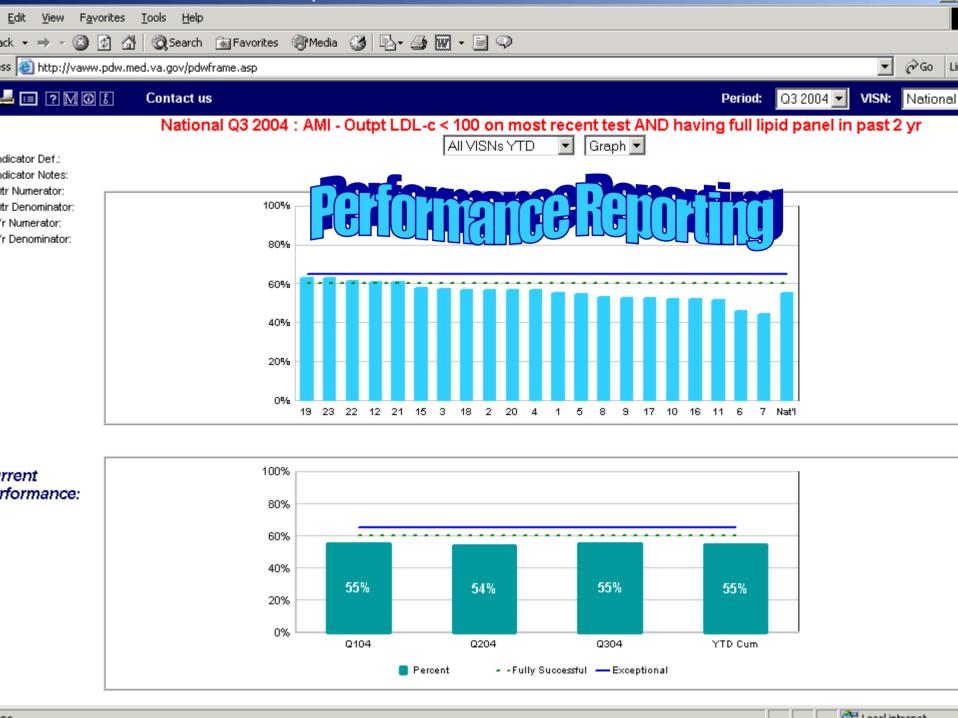
Appropriate and timely Revascularization

Timely ECG
24 Hour Cardiology Involvement
Predischarge Dx Catheterization
Predischarge Plan for further testing

EF Assessment BB/ ACEI Use Timely Serial Troponin

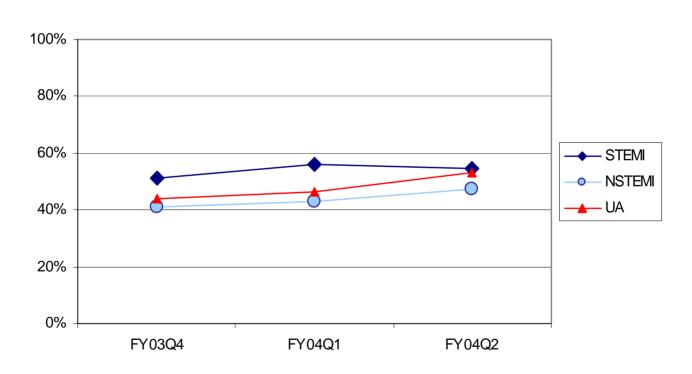






End Of Year Reporting

Inpatient ECG in Hospital within 10 Minutes of Arrival



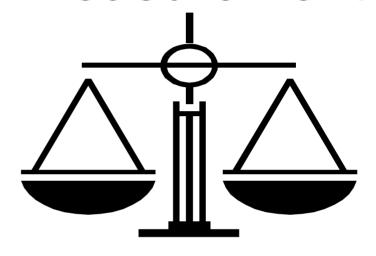
	FY03Q4	FY04Q1	FY04Q2
STEMI	51%	56%	55%
NSTEMI	41%	43%	48%
UA	44%	46%	53%



Public Health Policy and Performance Measurement

Be careful which policy you drive, it just might happen...

Chain of logic that the evidence must support to link the preventive service to improved health outcomes



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Primary → Risk Factor → Diagnostic → Therapy → Intermediate → Long Term Prevention Assessment Screening Outcome(s)
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Move VHA toward a system that identifies level of high, moderate, and low cardiovascular risk and thus understands and manages risk across time and at the same level of care regardless of site of entry

Contact

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Cardiovascular Clinical Practice Guideline Metrics

Margaret A. Hawthorne LTC(P), AN Quality Management Chief, Evidence-Based Practice Fort Sam Houston, Texas 78234

Hypertension

- Percent of eligible patients with an active diagnosis of hypertension whose most recent blood pressure recording was:
 - Less than 140/90
 - Equal to or greater than 160/100 or no BP recorded in the past year

JCAHO ORYX MEASURES

- % of patients given aspirin at arrival of ER
- % of patients prescribed aspirin at discharge
- % of patients with AMI or left ventricular ejection fraction level < 40% be prescribed an ACEI at discharge
- % of AMI patients with a history of smoking within the past year received smoking cessation advice or counseling
- % of patients prescribed a beta-blocker at discharge
- % of patients on a beta-blocker at arrival
- Time to thrombolysis (30 minutes)
- o Time to PTCA (90 minutes)
- % Inpatient mortality

Future Core Measures

- Lipid profile drawn within 24 hours of patient arrival for AMI
- % of patients with abnormal lipid profile results with documented plan for lipid management
- AMI mortality within 30 days post AMI

JCAHO Heart Failure Core Measure Set

- % Heart failure discharge instructions to patient and/or caregiver to include: understand the prognosis of heart failure, the rationale for pharmacotherapy and prescribed medication regimen, dietary restrictions, and activity recommendations, and the signs and symptoms of deteriorating condition
- Number of heart failure patients with documented left ventricular function (LVF) evaluation
- Number of heart failure patients who are prescribed Angiotensin Converting Enzyme Inhibitor(ACEI) for left ventricular systolic dysfunction (LVSD)
- % of HF patients with a history of smoking within the past year received smoking cessation advice or counseling

JCAHO Disease-Specific Care Standardized Heart Failure Measure Set

- Monitor Body Weight
- 90-day return visit to emergency department or admission for heart failure after emergency department discharge for heart failure
- Heart Failure patients with documentation that they or their caregivers received written instruction and/or educational materials addressing all of the following:
 - diet
 - weight monitoring
 - activity level
 - medications
 - symptom management
- Number of patients in which current medication drug dose and frequency is documented in the medical record
- Heart Failure patients with documented left ventricular function (LVF) evaluation
- Heart Failure patients who are prescribed Angiotensin Converting Enzyme Inhibitor(ACEI) for left ventricular systolic dysfunction (LVSD)
- The number of heart failure patients screened for or given influenza vaccination
- o The number of heart failure patients screened for or given pneumococcal vaccination
- The percentage of enrolled patients with heart failure with blood pressure <140 systolic, <90 diastolic recorded for the reporting period

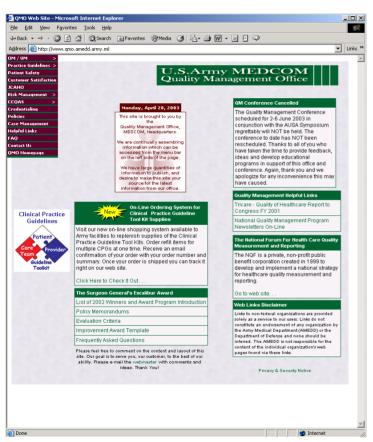
Outpatient CVD Metrics

- % of patients on aspirin at most recent visit or contraindication documented
- % of patients on Beta Blocker at most recent visit or contraindication documented
- % of patients with LVEF <40 on ACEI at most recent visit
- % of patients screened for tobacco use in past twelve months
- % of patients with full lipid profile done within past two years
- % of patients within past 2 years were advised of any lifestyle changes

Web Resources

www.QMO.amedd.army.mil *

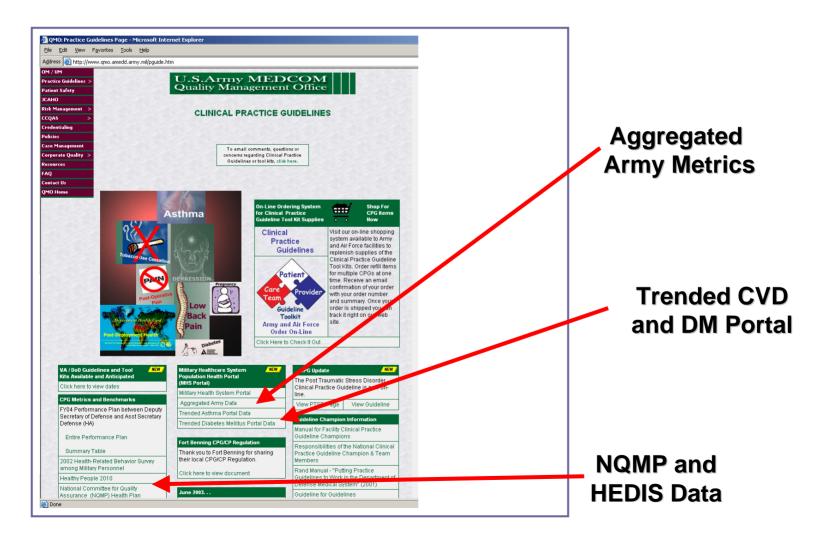
www.OQP.med.va.gov/cpg/cpg.htm *





* Where to obtain and reorder CPG Toolkits & materials.

Aggregate Army Metrics, Trended Diabetes Mellitus Portal, NQMP and HEDIS Data



Military Healthcare System **Population Health Portal**

MHS Population Health Portal









Air Force Population Health Portal Naval Population Health Navigator Army Population Health Information Connections ... the one tool for all Services, known as the MHS Portal.

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Population data stratified by preventive service, age, and gender

Proactively monitor tix preventive services through action lists Track your success with national HEDGS* benchmarks Childhood Immunizations currently limited to Air Force MTFs and one Navy demonstration site

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The MHS Portal was developed to meet the Services' request for actionable information for Population Health and Medical Management. Championed by the Population Health and Medical Management (PHMM) Division at TRICARE Management Activity in collaboration with the Population Health Support Division in San Autonio and our Service partners.

Provides policies, instructions, programs, forums, and resources to measure. improve, and motain the health status of the population.

We are the definitive source for population health information to facilitate the transformation of the MHS from a reactive to proactive healthcase

Population Health and Medical Management Division Office of the Chief Medical Officer, TRICARE Management Activity,

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SERVICE RESOURCES

Air Force Population Health Portal Lt Col Phillips, USAF, MC AF Population Health Support Division 210.532.4265 or D5N 240.4265 chris phillips it brooks af mil

Mrs. Betty Ruschmeier BUMED-MIMD 202.762.3139 or DSN 762.3139 emranchmeser/franmed.navy.mil

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https://pophealth.afms.mil/tsphp/login/login.cfm